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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,525	09/08/2006	Albertus Alard Dijk	4662-228	9517
23117 7590 04/27/2011 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203				
EXAMINER				
BADR, HAMID R				
ART UNIT		PAPER NUMBER		
1781				
MAIL DATE		DELIVERY MODE		
04/27/2011		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/587,525

Applicant(s)

DIJK ET AL.

Examiner

HAMID R. BADR

Art Unit

1781

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on RCE, 3/07/2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-942)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/07/2011 has been entered.

Claims 10-32 are being considered on the merits.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 10-32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement.

The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Case law holds that applicant's specification must be "commensurately enabling [regarding the scope of the claims]" *Ex Parte Kung*, 17 USPQ2d 1545, 1547 (Bd. Pat. App. Inter. 1990). Otherwise **undue experimentation** would be involved in determining how to practice and use applicant's invention. The test for undue experimentation as to whether or not all

compounds within the scope of claims 10-32 can be used as claimed and whether claims 10-32 meet the test is stated in *Ex parte Forman*, 230 USPQ 546, 547 (Bd. Pat. App. Inter. 1986) and *In re Wands*, 8 USPQ2d 1400, 1404 (Fed.Cir. 1988).

1. Claims 10-32 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for cheese, does not reasonably provide enablement for cheese derived product which may encompass unlimited products. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims.
2. Level of skill in the art: Different products may be derived from cheese by either extraction, compounding, purification, etc. Therefore, manufacturing taste in the products derived from cheese does not hold true.
3. The presence of Examples: The example provided by the applicant has a limited showing with respect to cheese derived products.
4. Level of Unpredictability: A limited showing with respect to generation of flavor in cheese or cheese milk does not grant a predictable behavior by all possible products which may be derived from cheese.
5. For these reasons, the applicant is not entitled to a patent having such a broad scope.

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 10-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claims 10-32 are indefinite for "a cheese derived product". Since there are numerous compounds, and compositions that can be derived from cheese either by extraction, synthesis, composition etc.; it is not clear what is meant to be encompassed by this phrase. The scope of the claims is not clear.
4. Claim 10 is indefinite for "a more matured taste". This is a relative term. This term is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.
5. Claim 10 recites relative to a control, since the nature of the control is not defined the claim is not reproducible .
6. Claim 14 is indefinite for "increasing the flavor intensity". This is a relative term. This term is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention, (increased over what?).
7. Claims 10, 14, 18, 28, 30, 31 and 32 are indefinite because of addressing the same concept. These claims recite processes for manufacturing more matured taste, increasing the flavor intensity, and accelerating cheese ripening which are basically the same concepts all resulted by the addition of carboxypeptidase CPD-1 to protein containing materials.

8. Claim 31 is indefinite for "Gouda-type". The word "type" makes the claim indefinite because it is not clear what characteristics, in a cheese, will qualify that cheese as Gouda.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 10-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Delest et al. (US 6,875,456, hereinafter R1) with Dal Degan et al. (1992, Purification and characterization of two serine carboxypeptidases from *Aspergillus niger*; cited in the specification; hereinafter R2) as evidentiary reference.
2. R1 discloses hydrolyzing a protein containing substrate with an endoprotease and an exoprotease whereby the combined action of the endoprotease and exoprotease releases at least one free amino acid from the protein containing substrate. (col. 3, lines 50-55)
3. R1 discloses that food compositions comprising protein hydrolysates of their invention obtain an improved flavor e.g. after fermentation, processing or cooking. (col. 4, lines 23-26). It is therefore clear that in a process like cheesemaking, the protein hydrolysate produced by the action of an endoprotease and an exoprotease, the flavor

of cheese will be improved after the fermentation stage associated with fermented cheeses.

4. R1 discloses that many amino acids have been indicated in the aroma development of fermented products like cheese. Hydrophobic amino acids like valine, leucine, isoleucine, phenylalanine as well as sulfur containing amino acids like methionine are known to be of particular importance. (col. 5, lines 53-58 and lines 63-67)
5. R1 discloses that the endo and exo proteases employed for their protein hydrolysis are pure for at least 95% of a single proteolytic activity. (col. 7, lines 5-9)
6. R1 discloses the endoproteases which can be used including enzymes with rennet like specificity, for example microbial rennet (col. 7, lines 42-56) and preferred selective carboxypeptidase including CPD-1 of *Aspergillus niger*. (col. 8, lines 1-4).
7. It is noted that claim 1 requires adding carboxypeptidase CPD-1 to either cheese milk, or curd at salting stage or cheese paste. Claim 1 recites adding the exoprotease to cheese milk prior to; or together with the addition of coagulant. Microbial rennet is conventionally used in cheese making for coagulation of casein to obtain the cheese curd. Therefore, since R1 discloses the cooperative action of carboxypeptidase CPD-1 and rennet, for generation of flavor or flavor precursors, the addition of carboxypeptidase to cheese milk before adding the coagulant (rennet), or together with coagulant, or to cheese curd and cheese paste which already include the rennet coagulant would be obvious.

8. New claims 28-32 require the liberation of leucine, methionine and valine. R1 discusses the importance of these amino acids in flavor development (see paragraph 4 above). At the same time, carboxypeptidase CPD-1 of *Aspergillus niger* has high specificity of for these amino acids. The evidentiary reference R2 clearly discloses this specificity. R2 discloses that the highest specificity is obtained for hydrophobic residues such as leucine, methionine, valine etc. (page 2147, enzymatic properties of CPD-1 and CPD-II). Therefore, adding carboxypeptidase CPD-1 of *Aspergillus niger*, as disclosed by R1, will intrinsically liberate leucine, methionine and valine as presently claimed in claims 28-32.

9. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine the action of carboxypeptidase CPD-1 and rennet, in making cheese, to enhance the flavor of the cheese or to add carboxypeptidase to a curd or cheese paste which already includes rennet to enhance its flavor. One would do so to enhance the cheese flavor or accelerate the ripening of cheese. Absent any evidence to contrary and based on the teachings of the cited reference, there would be a reasonable expectation of success in enhancing the cheese flavor.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HAMID R. BADR whose telephone number is (571)270-3455. The examiner can normally be reached on M-F, 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit 1781

Hamid R Badr
Examiner
Art Unit 1781